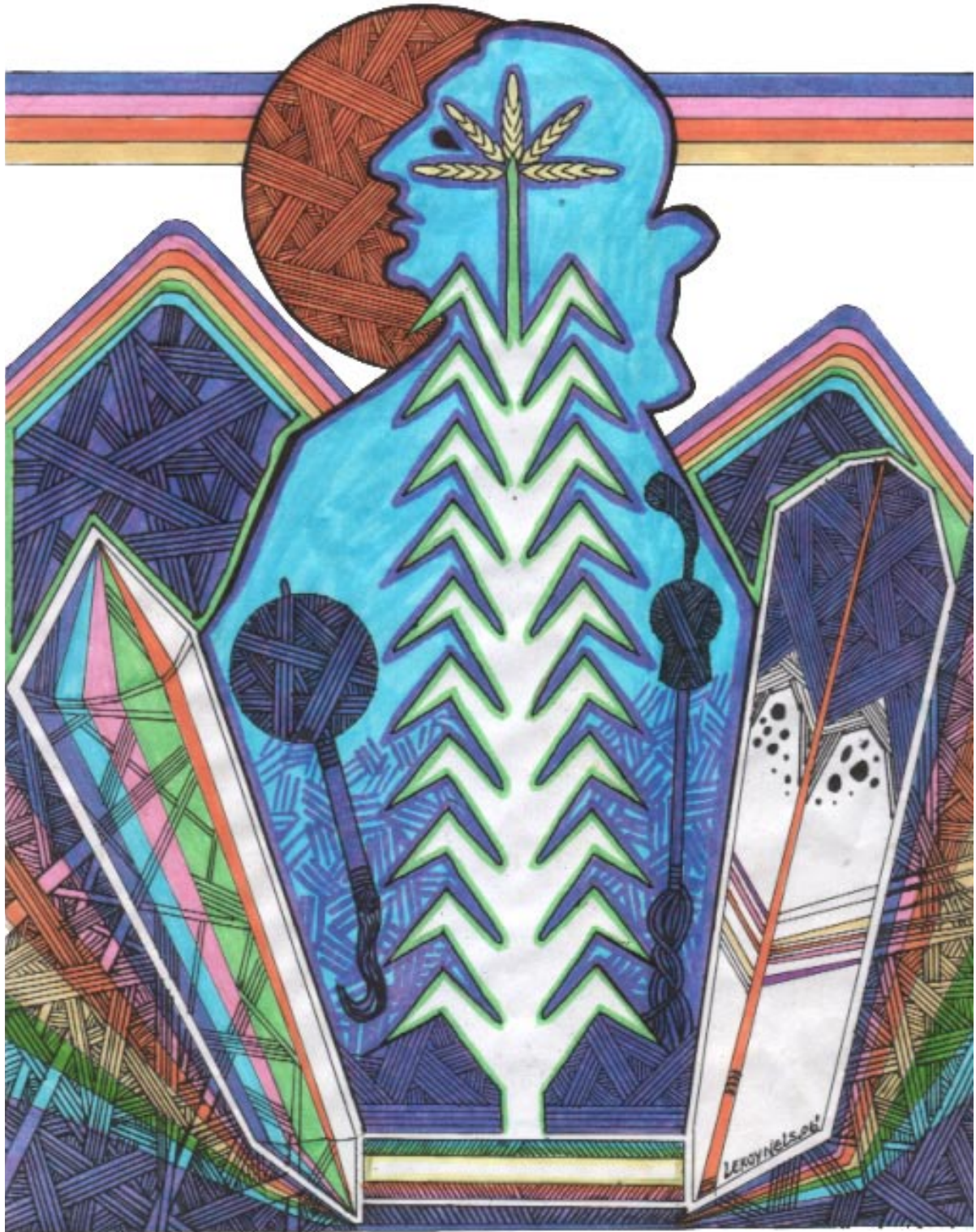


Moving with the Stars



Overview

Objective – Promote kinesthetic, experiential learning; through movement, weave together the concepts of star formation, “we are made of starstuff,” and the Diné Life Standards (courtesy of Diné College).

Age Range – This activity is designed for ALL ages.

Materials Needed – Masking or duct tape; a large floor space; background information for the facilitator (provided).

Set Up – Using the tape, make a very large, 5-pointed star on the floor. Write out the Diné Life Standards on a blackboard or large sheet of paper taped to a wall so the group can easily see (optional).

Estimated Time – 20 – 30 minutes; approximately one-half class period if used in a classroom.

Facilitator or Teacher Pre-Work – Before conducting the activity, the facilitator should read the scientific background information and Navajo story pertaining to this activity. This activity works best with a group of 10-15 people.

How To

Guidelines for Facilitating the Activity – Assemble a group, and begin by asking the group about their ideas pertaining to stars – What are they? How do they form? What is our relationship to them? Explain that they are going to take part in a movement activity which combines scientific and Navajo knowledge about stars and our relationship to them. Then, according to the background information: (1) explain and demonstrate the sequence of movements described below to the group, (2) do a rehearsal with the group where the facilitator demonstrates the movements and the group practices them, (3) perform the “real thing,” where everyone does the movements together.

The first sequence of movements mimics the scientific concept of star formation. All the action should center on the 5-pointed star shape taped on the floor. From the center of the taped star, the group should disperse and each person should be randomly wandering around the space, sometimes touching, mostly on their own, moving in all directions – but not too far away from one another – mimicking the random movement of particles in a nebula. The facilitator, or another person who is not moving around randomly, then moves through the group, arms out wide, mimicking the energy wave of a nearby supernova event.



Community Night Event – Field Test in Cameron, AZ

This person moves in one direction, quickly, through the group (for example – left to right), as a shockwave. The randomly moving people respond to this energy. In its wake, they begin to cluster, and spiral in toward each other. First two people find each other and stick together. Then more join them in a swirling pattern. Eventually all the people are together, very tightly packed into a round shape – mimicking a sphere; the shape of the Sun.

Their individual movements in this tightly packed group are fast – arms and legs and heads and torsos swaying randomly, everyone pressing together and moving throughout the sphere, but maintaining the shape of a sphere. This sphere of people should center on the taped star on the floor. On cue from the facilitator, everyone raises their arms above their head and begins wiggling their fingers – mimicking the “ignition” of the star. Their wiggling fingers are mimicking the burning fire of the star.

The second sequence of movements transitions from exploring scientific concepts to exploring Navajo concepts. The group, still wiggling their fingers with arms raised, moves to the edges of the taped star and lines up – one next to the other – along the edges of the pattern, facing inward. Each person then stretches out their arms and legs into a five-pointed star pattern (torso, left arm, right arm, left leg, right leg). Each person, moving in place and remaining standing on the taped star pattern on the floor, spins while still holding their arms and legs in the star pattern. This movement represents that humans are made in the likeness of a star and have 5 points just like the star.

The third sequence of movements outlines the 6 Diné Life Standards: Beauty Before Me, Beauty Behind Me, Beauty Below Me, Beauty Above Me, Beauty All Around Me, With Beauty I Speak. While still standing on the taped star pattern, each person speaks each phrase while doing the accompanying movement: Beauty Before Me – sweep one arm out across the body, going from the body out into the center of the taped star; Beauty Behind Me – sweep one arm behind the body while the torso turns around to look behind; Beauty Below Me, both arms sweep down toward the floor while bending at the waist; Beauty Above Me – both arms sweep up toward the ceiling while the head tilts up; Beauty All Around Me – spin with arms and legs stretched out in a 5 pointed star pattern as before; With Beauty I Speak – facing inward again, cup the hands around the mouth while speaking the phrase. Encourage speaking the final phrase with much enthusiasm, promoting each individual to find and express their own voice. The kids may want to shout. Repeat this section as often as desired. End with much clapping and fanfare! Practice this series a few times during the rehearsal so you can move through it seamlessly.

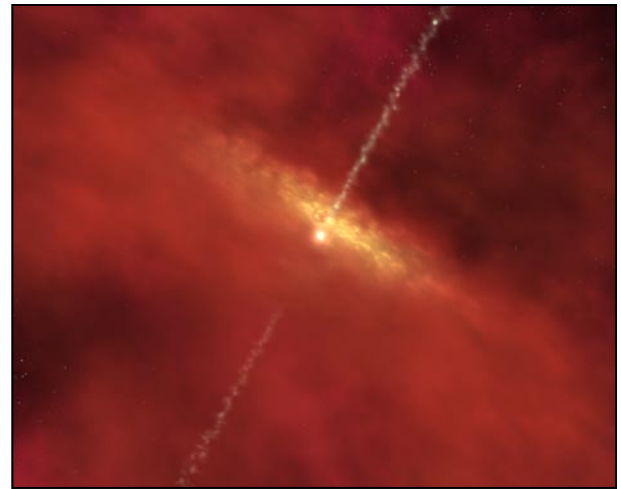
Background

The first sequence of movements corresponds to scientific theory of star formation.

SCIENTIFIC BACKGROUND

Star Formation: Stars form in regions of space called nebulae, where the raw material and conditions necessary for formation are present. The concept of star formation begins with diffuse material in clouds of **gases** such as carbon monoxide and hydrogen gas, **dust** meaning small rocky particles such as silicates like beach sand, minerals such as olivine, organic particles like charcoal dust, and **ices** such as water ice.

The particulate matter and gases have a random motion. A pressure blast, or “wind” such as the radiation produced from a nearby dying star (supernova) can cause the diffuse material to begin to coalesce and increase in density at certain points which will eventually become discrete stars. A small, growing star is surrounded by a circumstellar disk of spinning dust and gas, like a music CD or Frisbee, with the young star in the center. Through a process called accretion, the material will condense further. The more mass it gains and the larger it gets, the more material will be attracted to it. In this way, it gains even more mass and gets even larger. Please refer to the film for a visual explanation of this. Eventually, the density of material reaches such a high level that the nuclei of the atoms in the gas and dust are under such pressure that they fuse, and begin to form new elements. Huge amounts of energy are given off in the process which we observe as heat and light.



Jets of Outflowing Gas Burst from a Forming Star
NASA/IPAC/R. Hurt

The **second sequence of movements** corresponds to the Navajo story in which it is described that humans were formed in the likeness of the Sun – a star – with five points (torso, left arm, right arm, left leg, right leg). Both humans and stars have “5-points.”

NAVAJO STORY

An Excerpt From: *The Diné Astronomy*

From the Chinlé Unified School District
Dedicated to Dr. Dean C. Jackson

After the creation of the Earth, sky, and the atmosphere, the Holy people realized that the whole universe was entirely dark. There was no form of light to illuminate the universe. So the Holy people reconvened to discuss how to remedy this situation. Since there was no source of light, there was no order and direction, and no measurement of time. Once they had a means of measuring time and having light to see with, they would set about organizing the rest of the world.

They gathered all different types of materials that they thought would be good as a light source. While they were debating on an adequate instrument that could give out light, a certain young man came forward and pulled out a turquoise spherical object from his cloak. “This will be the instrument that will be the container of light. The ‘First Fire’ (Átsééh kq) will be the source to energize it with light and heat. We will put this fire in the turquoise sphere,” he announced. “But you must place all your prized possessions of gems and other valuable items on the buckskin.”

The people did not know who this young man was or why he wanted their precious possessions, but they did as he instructed. They brought forth turquoise (doot'izhii), whiteshell (yoolgai), abalones (diichilii), black jet stones (bááshzhinii), obsidian (noolyínii), coral (tselchí'í), and many other precious gems. They also brought forth other beautiful and prized material possessions. They piled these on the buckskin as they were instructed. They were all curious and awed by his assumption of authority in the matter. This young man seemed to know what he was doing.

At length, the quiet young man came forth again. He said, "These precious gems and other belongings that you have brought forth will be placed within the turquoise sphere and it will be known as 'One That Travels During the Daytime' or Sun, Jihonaa'éeí. It will send its rays to the Earth and these rays will embody all these valuables that you have given, the Sun will give wealth and goodness to the Earth and all its inhabitants." The people placed features on the face of the sphere. They also placed arms, legs and torso on it. The young man was instructed to place emotions in the sphere so that it would feel compassion, like anger, sadness, and happiness.

The Sun must be like Earth people so he could understand their needs and be forgiving when they neglected to do their duties. The young man took a portion of First Fire (Alsé K'q') and ignited the sphere with it. Immediately the sphere burst into flames. The heat and light from it was so hot and bright that many shrank from it and shielded themselves. The ground beneath and around the Sun burned from the great heat it radiated. It was clear to the People that the Sun could not remain on or near Earth as they had originally planned. Another alternative had to be found before the whole Earth was burned to a crisp.

Suggestions were given quickly due to the urgency. Some said the Sun should be hung from the sky, others thought that placing it on a high mountain would solve the problem. Still others suggested that the wind could blow it in the sky and retain it there. The most practical ideas were tried. There was great confusion and panic as they tried to solve the problem as quickly as possible. As others ran about in a state of frenzy, the young man came forward again. Very calmly he said, "Perhaps someone should carry the Sun above the Earth. In this way the whole sky could be filled with light and warmth rather than having small portions being filled at a time." The young man instructed that someone with great power should have to enter the Sun and ascend above the Earth and remain in the sky. Once more there was a scramble as volunteers came forward. Each of the volunteers tried using all his powers and strength to carry the Sun, but none was successful. Even Coyote entered the sphere as the others had done. Summoning every ounce of strength in his body, straining every muscle, he heaved and heaved pulling tendons and ligaments, but even he could not lift the Sun. After several heroic tries, even Coyote had to admit that he could not lift the burning Sun. Exhausted, he went to the sidelines and waited with the others.

The young man came forth again and announced that he would carry the Sun. But he decreed that for every day he carried the Sun, a life on Earth would be taken. "This will be my payment," he said. The people gathered and had to agree for there was no other way. The young man entered the Sun and ascended into the sky. He did not have to struggle as the others had because he was the only one that possessed the power and knowledge to exert influence and great force to make it function properly. It was also declared by the people that the Sun would rise from the east and set in the west. This set the four cardinal directions for the people. He must travel in a circle in a counter clock direction (Shábik'ehgo). This would induce and require complete cycles for all life on Earth. Another order to everything was made.

The third sequence of movements corresponds to the six principles of the Diné Life Standards.

Diné Life Standards **Courtesy of Diné College**

The Diné Life Standards have six principles for life. These standards are prerequisite to *Sa'ah Naaghai Bik'eh Hozhoon*. One has to achieve a certain amount of each principle to be a balanced individual.

The standards are as follows:

Beauty Before Me – This requires planning; short, intermediate, and long term planning on how one can complete his or her education to be self sufficient. One must speak both the Diné and English languages to fully comprehend the teachings of *Sa'ah Naaghai Bik'eh Hozhoon*.

Beauty Behind Me – This principle will help one to achieve self-identity. Where do you come from?

Beauty Below Me – What is your relationship with Mother Earth in terms of Diné and Western knowledge?

Beauty Above Me – What is your relationship with Father Sky in terms of Diné and Western knowledge?

Beauty All Around Me – What is your relationship with your environment, including people and natural elements in terms of Diné and Western knowledge?

With Beauty I Speak – Do you have adequate Diné and Western knowledge internalized in you so as to use these knowledge sources effectively?

When one learns all the six principles together and utilizes it accordingly, this person is a balanced individual.